Attorney Ref: 3549-Z

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Cindy KIRK et al

Art Unit 2144

Application No. 10/021,505

Examiner: Peling Andy Shaw

Filed: December 19, 2001

For: MANAGEMENT OF OSI LAYER-3 DATA NETWORK ENTITIES

APPEAL BRIEF TRANSMITTAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto are three (3) copies of the BRIEF ON APPEAL for the above-identified application. The fee in the amount of $500.00 is submitted herewith.

Any additional fees necessary to effect the proper and timely filing of this Brief may be charged to Deposit Account No. 26-0090.

Respectfully submitted,

Jim Zegeer

Jim Zegeer, Reg. No. 18,957
Attorney for Appellants

Attachments: Brief on Appeal (3 copies)

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Date: February 7, 2006

In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.

Attorney Ref: 3549-Z

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Art Unit 2144
Examiner: Peling Andy Shaw

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the final rejection mailed August 10, 2005 of Claims 1 - 18 of the above-identified application.

(i). The Real Party in Interest

The real party in interest is Alcatel Canada, Inc.

(ii). Related Appeals and Interferences

There are no related appeals or interferences.

(iii). Status of the Claims

All claims pending in the application, namely 1 – 18, have been finally rejected.

(iv). Status of the Amendments

An amendment filed November 9, 2005 failed to place the application in condition for allowance. All amendments have been entered.

(v). Summary of Claimed Subject Matter

The invention is directed to a graphical user interface for a network management system which includes a human machine interface (Fig. 4, element 140) having a display 600 with two view panes 610 and 620 (Fig. 6). The first view pane 610 displays a representation of the OSI[1] layer-3 entities and the second view pane, pane 620, displays simultaneously representations of OSI layer-2 entities, and this combination of two view panes provides for a concise presentation of OSI layer-2 entities corresponding to selected OSI layer-3 entities. This simultaneous display of selected OSI layer-2 entities in pane 620 corresponding to at least one OSI layer-3 entities selected in first pane 610 provides for improved efficiency in management, troubleshooting and provisioning

---

[1] The acronym "OSI" stands for Open Systems Interconnection hierarchy which specifies layers defining data transport functions performed by data transport protocol (page 7, lines 2 and 3). The OSI layer-2 is also known as the Data Link Layer concerning itself with reliable data transport across corresponding layer-1 physical links (page 7, lines 13 and 14). The OSI layer-3 is also known as the Network Layer concerning itself with the management of data connectivity end-to-end (page 7, lines 21 and 22).

of data transport paths. The claimed invention is best shown and seen in Figs. 4, 6, 7 and 8 which are reproduced for convenience of reference on the following two pages:

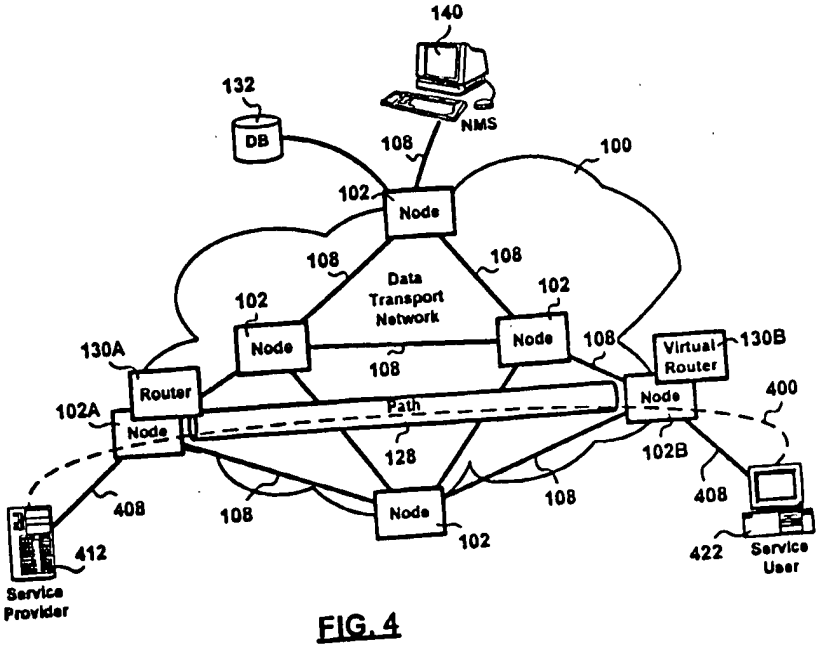

140
NMS
132
DB
108
100
102
Node
Data
Transport
Network
130A
Router
102A
Node
Path
128
Virtual
Router
130B
400
102B
408
422
Service
User
412
Service
Provider

FIG. 4

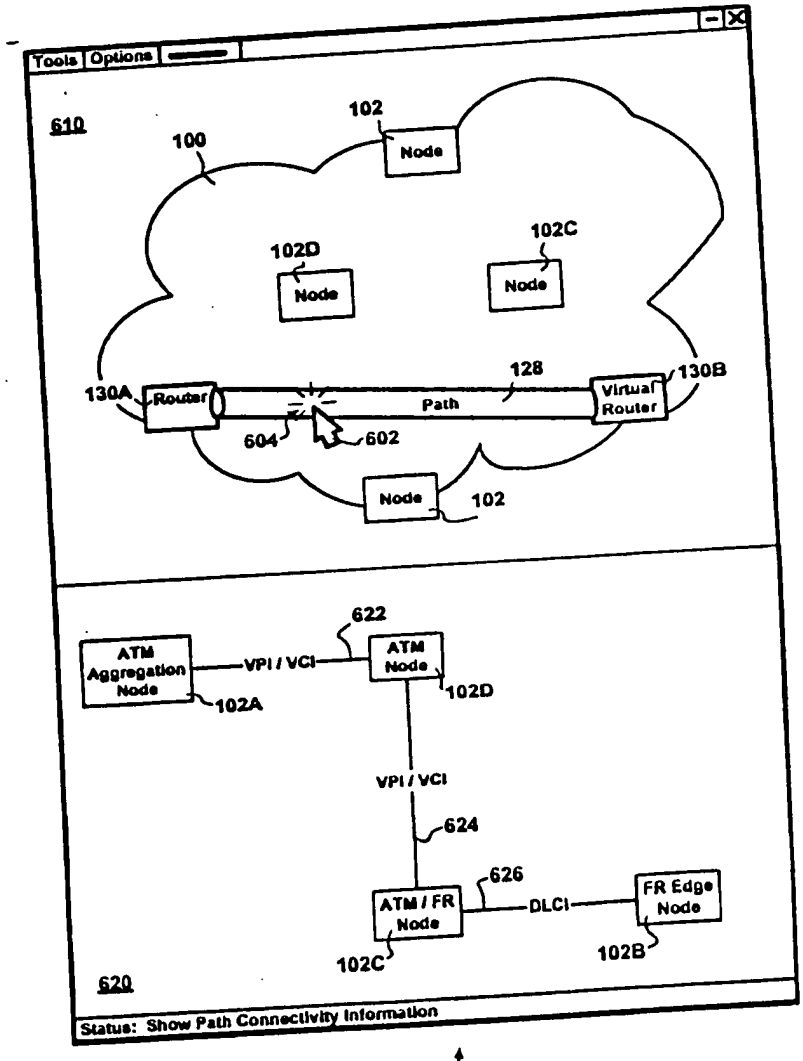

Tools
Options
610
100
102
Node
102D
102C
130A
Router
128
Path
Virtual
Router
130B
604
602
620
ATM
Aggregation
Node
102A
VPI / VCI
622
ATM
Node
102D
624
626
ATM / FR
Node
102C
DLCI
FR Edge
Node
102B
Status: Show Path Connectivity Information
600

FIG. 6

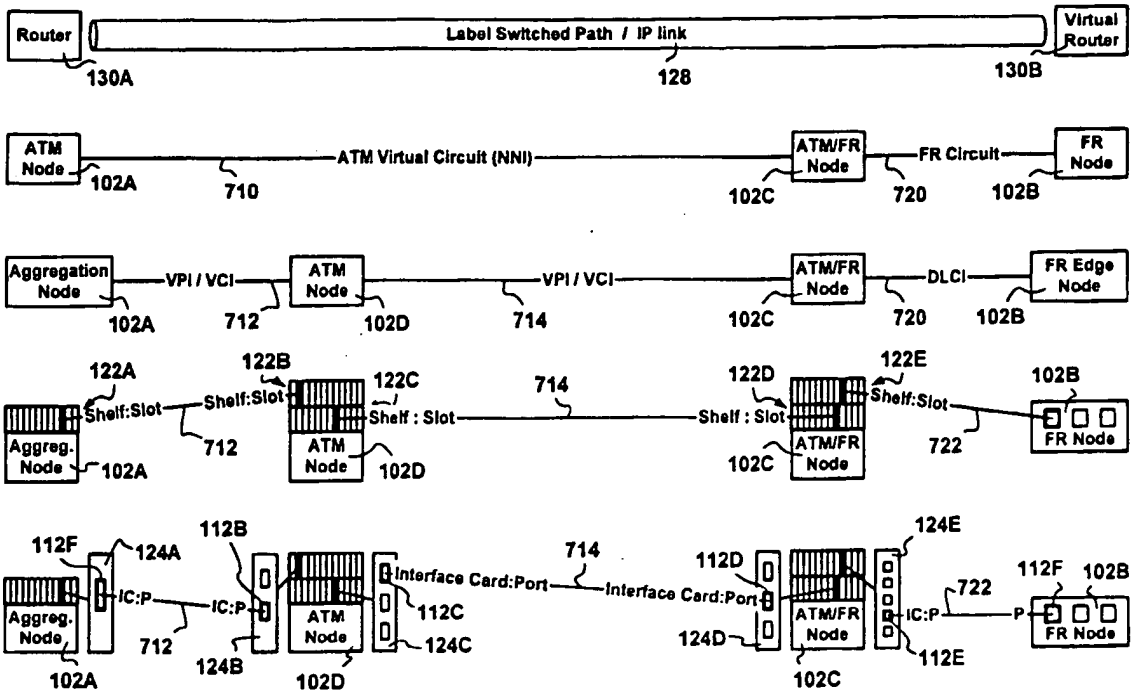

Router
Label Switched Path / IP link
Virtual Router
130A
128
130B
ATM Node
ATM Virtual Circuit (NNI)
ATM/FR Node
FR Circuit
FR Node
102A
710
102C
720
102B
Aggregation Node
VPI / VCI
ATM Node
VPI / VCI
ATM/FR Node
DLCI
FR Edge Node
102A
712
102D
714
102C
720
102B
122A
122B
122C
714
122D
122E
102B
Shelf:Slot
Shelf:Slot
Shelf : Slot
Shelf : Slot
Shelf:Slot
Aggreg. Node
712
ATM Node
ATM/FR Node
722
FR Node
102A
102D
102C
112F
124A
112B
714
124E
112F
102B
IC:P
IC:P
Interface Card:Port
Interface Card:Port
722
Aggreg. Node
712
ATM Node
ATM/FR Node
IC:P
P
FR Node
112C
124C
124D
112E
102A
124B
102D
102C

FIG. 7

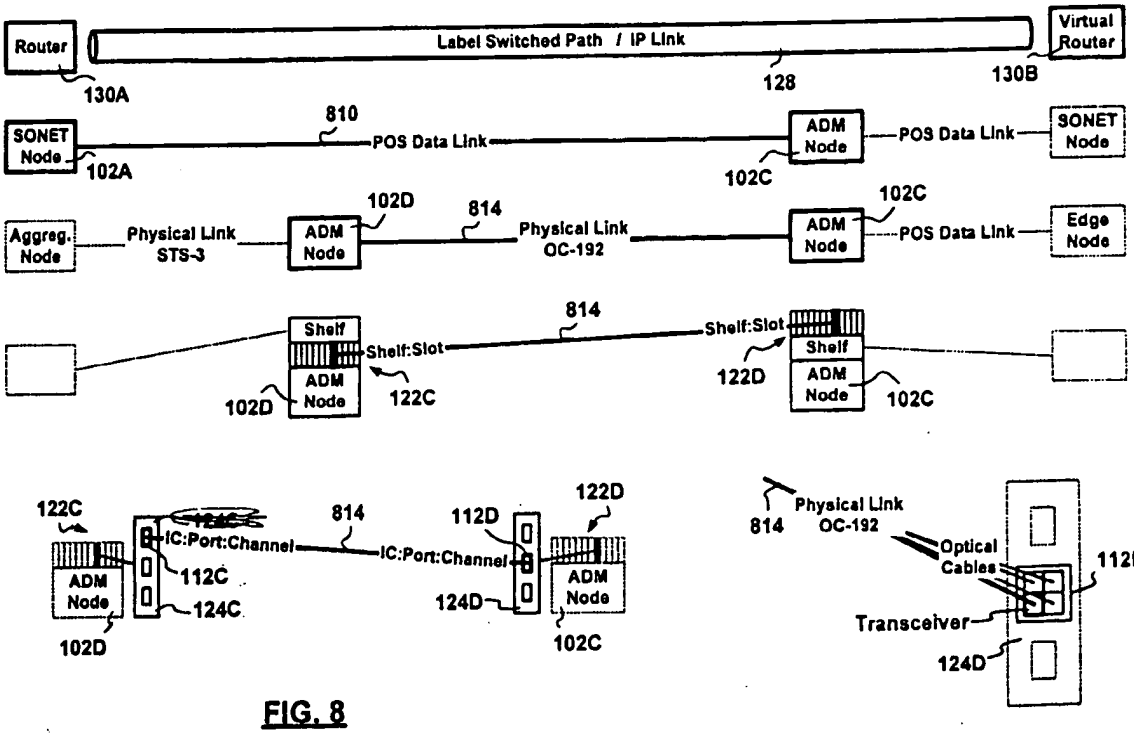

Router
Label Switched Path / IP Link
Virtual Router
130A
128
130B
SONET Node
810
POS Data Link
ADM Node
POS Data Link
SONET Node
102A
102C
Aggreg. Node
Physical Link STS-3
ADM Node
102D
814
Physical Link OC-192
ADM Node
102C
POS Data Link
Edge Node
Shelf
Shelf:Slot
814
Shelf:Slot
Shelf
ADM Node
122C
122D
ADM Node
102D
102C
122C
814
122D
Physical Link
814
OC-192
IC:Port:Channel
112D
IC:Port:Channel
Optical Cables
112D
ADM Node
112C
124C
124D
ADM Node
Transceiver
102D
102C
124D

FIG. 8

The novel graphical user interface of this invention is diagrammatically illustrated in Fig. 6 and its exemplary out in Figs. 7 and 8. In order to provide quality-of-service (QoS) in conveying data via the data transport network 100 between the service provider node 412 and the service user node 422, a data transport path 128 is provisioned between the edge nodes 102A and 102B (see Fig. 4). Data transport paths such as shown at 128 in Figs. 4 and 6 are supported by connection oriented data transport protocols.

As noted above, the display 600 is divided into two view panes (pane 610 and pane 620). The first view pane 610 shows the data transport network 100. The goal is to show the layer-3 representation of the entire managed data network. Routers 130A steering data traffic onto the data pipe/tunnel transport path 128. Routers 130A and 130B may be either implemented as stand-alone physical data transport equipment or in software/firmware of a data transport node such as the virtual routers 130B. In accordance with either implementation, the routers 130 are associated with data transport nodes 102 in the data transport nodes 100. Other nodes 102 bearing layer-3 IP address ADDRs are shown as part of the managed network and further provide a visual context for the routers 130 and data transport path 128 (see specification, paragraph 54 bridging pages 14 and 15).

The second view pane 620 selectively and simultaneously shows the layer-2 connectivity information associated with selected 604 layer-3 entities in pane 610 - for example, the data transport path 128. The selection is typically made via the use of pointing capabilities (cursor 602, for example) of the network management system installed in element 140.

Fig. 6 displays a multi-hop internet protocol link providing data transport for data transport path 128.

In managing data transport path 128, it is important to be able to inspect the underlying data network entities provisioning the data transport path. In accordance with the example shown in Fig. 7:

> ...the data transport path 128 makes use of two data transport technologies and in particular ATM data transport 710 between end node 102A and data transport node 102C. Data network node 102C, a gateway, performs data transfer protocol conversion of the conveyed data to a FR data transport protocol for data transport 720 between node 102C and data network node 102B. This level of information includes OSI Layer-2 specific information relating to the use of the data transport protocols and protocol conversion at node 102C.
>
> In managing the selected data transport path 128, the analyst, by interacting with the NMS 140, may drill-down through the connectivity information associated therewith by interacting with the displayed iconical elements.
>
> For example, further drilling-down through the connectivity information associated with the data transport path 128, the analyst is able to ascertain that the end node 102A is an ATM aggregation node, that the ATM data transport 710 between nodes 102A and 102C has two hops via an intermediary ATM node 102D. Two data

> links 160 are shown: a first data link 712 between ATM nodes 102A and 102D, and a second data link 714 between ATM node 102D and the gateway node 102C. The Layer-2 representation includes the Layer-2 configuration information including the VPI/VCI used over the data links 712 and 714.
>
> *****
>
> Further drilling-down through the connectivity information interface card 124 and physical port 112 specifications may be displayed. Again, the interface card specification may only be shown selectively as it is relevant only to specific data transport equipment. (Specification paragraph [62] *et seq*.

Fig. 8 is a schematic representation showing a progressive presentation of connectivity information output in the second pane 620 in respect of data transport path 128 in troubleshooting thereof to identify failed equipment. In the example given in the specification, at page 18, a layer-3 data transport path 128 spanned between routers 130A and 130B is experiencing a failure. This may be signified to the analyst via a visual queues such as special coloring, special purpose shading, special purpose animation, etc. In Fig. 6, the experienced failure is presented via heavy highlight in pane 61. The progressive presentation of information in Fig. 8 represents displayed connectivity information corresponding to progressive lower layers as described at page 18, paragraph 71; page 19, paragraph 76.

Attached hereto is Exhibit A which is a set of claims marked in compliance with Section 37 C.F.R., Section 41.37(v) wherein every means plus function and step plus function has been

identified and the structure, material or acts described in the specification corresponding to each claimed function has been set forth with reference to the specification by page and line number and to the drawings by reference character.

(vi). Grounds of Rejection to be Reviewed on Appeal

Ground I.

The rejection of claims 1 - 6 under 35 U.S.C. 103(a) as being unpatentable over Engel et al (US 6,115,393) (hereinafter Engel) in view of Weinberg et al (US 6,144,962) (hereinafter Weinberg).

Ground II.

The rejection of claims 7 - 12 under 35 U.S.C. 103(a) as being unpatentable over Engel in view of Weinberg.

Ground III.

The rejection of claims 13 - 18 under 35 U.S.C. 103(a) as being unpatentable over Engel in view of Weinberg.

(vii). Argument

Independent claims 1, 7 and 13 call for a graphical user interface for a network management system having a single window which includes two panes displayable simultaneously. The first pane displays representations of OSI layer-3 entities, and the

second pane displays representations of OSI layer-2 entities according to a selection of the layer-3 entities and allows the management operation personnel to view simultaneously underlying OSI layer-2 entities over which the selected OSI layer-3 entity is provisioned.

The Examiner seems to agree that Engel does not show explicitly a single window having two panes showing OSI layer-2 and OSI layer-3 entities, respectively.

What Engel shows in Figs. 18 - 23 is described by Engel as follows:

> Fig. 18 is a basic summary tool display screen;
> Fig. 19 is a protocol selection menu that may be invoked through the summary tool display screen;
> Figs. 20*a-g* are examples of the statistical variables which are displayed for different protocols;
> Fig. 21 is an example of information that is displayed in the dialogs panel of the summary tool display screen;
> Fig. 22 is a basic data screen presenting a rate values panel, a count values panel and a protocols seen panel;
> Fig. 23 is a traffic matrix screen; ....
>
> (Figs. 18, 19, 22 and 23 are reproduced on the following page for convenience of reference.)

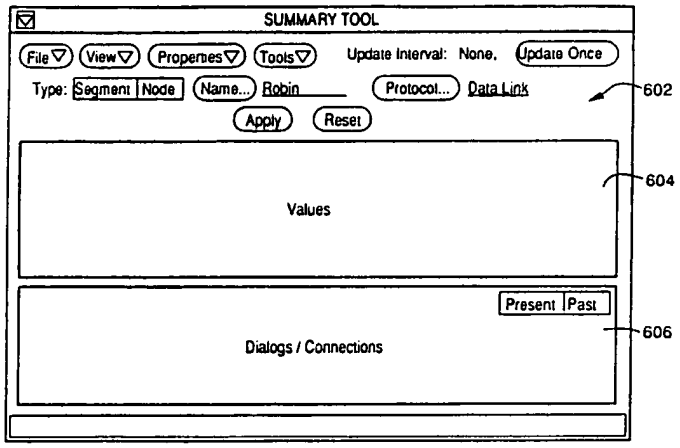


FIG 18

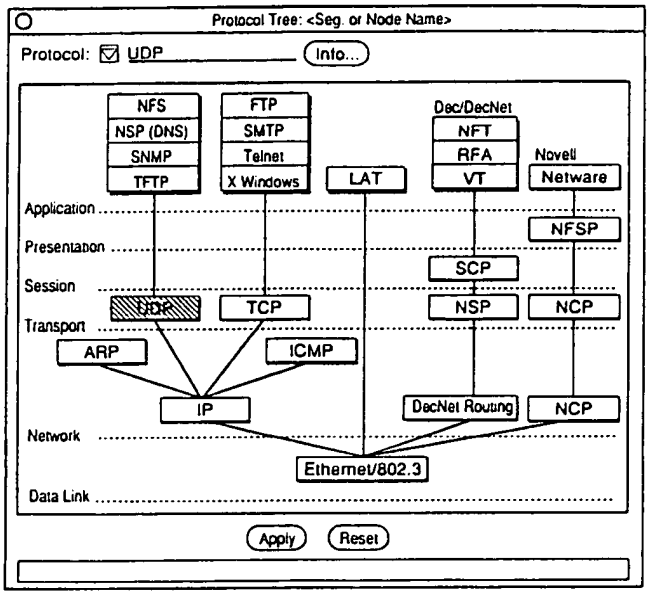


FIG 19

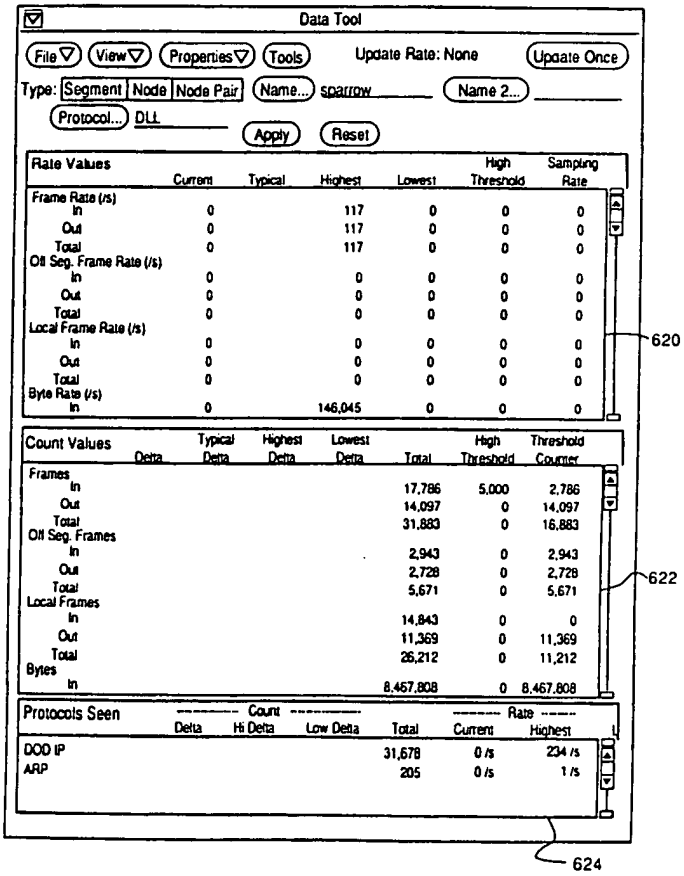


FIG 22

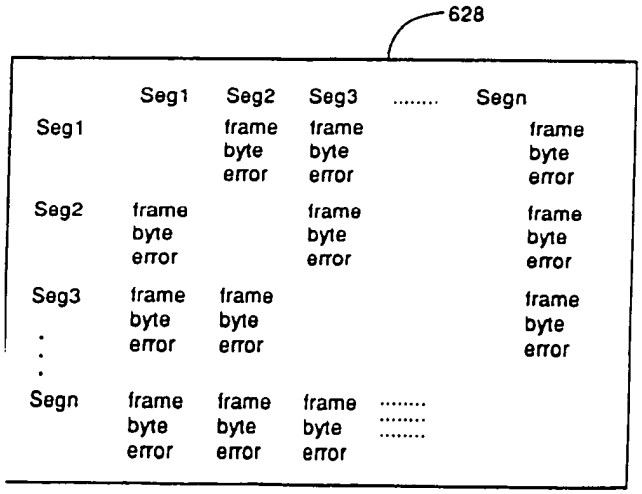


FIG 23

Engel states at column 28, lines 53 and 56:

> The Summary Tool displays a basic summary tool screen such as is shown in Fig. 18. The summary tool screen has three panels, namely, a control panel 602, a values panel 604, and a dialogs panel 606. The control panel includes the indicated mouse activated buttons.

Fig. 19 is described at column 29 in the following manner:

> It displays the available protocols in the form of a protocol tree with multiple protocol families. The protocol selection is two dimensional. That is, the user first selects the protocol family and then the particular layer within that family.

Manifestly, this is no teaching or suggestion of a two pane display in a single window with one pane being an OSI layer-3 overview and selectively and simultaneously displaying in the second pane OSI layer-2 entities of an entity selected by the analyst in the first pane progressively exposing selected lower layer connectivity information.

Engel does not teach or suggest a graphical user interface having a single window in which two panes are displayed simultaneously, the first pane displaying OSI Layer-3 entities, and the second pane displaying underlying OSI Layer-2 entities corresponding to a selected one of the OSI Layer-3 entities shown in the first pane.

The Examiner refers to Fig. 19 as showing "layers of a network map". However, the title of single pane window shown in Fig. 19 of Engel is "Protocol Tree". Appellants respectfully submit that in Fig. 19 Engel only shows relationships between protocols and does

not teach showing relationships between a managed OSI Layer-3 entity and underlying OSI Layer-2 managed entities.

The Examiner refers to col. 25, lines 41 to 45 as describing "a screen of data link layer". However, Engel describes building a screen in response to a request for data, request which is mapped to a single complex MIB. Engel defines an MIB in col. 1, lines 54-56 to be a group of vendor defined variables for a component. Appellants respectfully submit that Engel teaches displaying vendor defined variables for a component in a screen and does not teach showing simultaneous representations of OSI Layer-3 managed entities and selective representations of OSI Layer-2 managed entities.

The Examiner points to Engel, col. 26, lines 22-29 as describing "navigating through layers of network hierarchy". Appellants respectfully submit that the expression "navigating through layers of network hierarchy" is not defined anywhere in the Engel reference, and there is no suggestion of a single window which single window includes two panes displayable simultaneously where the first pane displays representations of OSI Layer-3 managed entities, the second panel displays representations of OSI Layer-2 managed entities corresponding to a selected one of the OSI Layer-3 managed entities shown in the first pane.

The Examiner has inserted the word "network" in quoting from the Engel reference. However, the Engel reference relates to "layers

of the hierarchy, as provided by SNM" and not to the OSI hierarchy. Appellants respectfully submit that the context surrounding the excerpt quoted by the Examiner relates to the topology of a network segment, i.e. OSI Layer 1 physical network configuration. Further, appellants respectfully submit that Engel teaches what SMP, one of the most popular network management systems prior to 1995, could do; and does not teach showing an OSI Layer-3 entity and underlying OSI Layer-2 entities simultaneously displayed in different panes of a single graphical user interface window.

It is respectfully submitted that Engel does not teach the single window dual pane management system defined in independent claims 1, 7 and 13. Instead Engel teaches inspecting packets conveyed in a network segment to extract vendor variables relating to multiple layered protocols in order to display all vendor variables relating to a single component in a single screen.

In the Advisory Action mailed December 2, 2005, the Examiner states that:

> Engel does not show (claims 1 and 6) explicitly a window of two panes showing layer 2 (or layer 1) and layer 3 entities respectively. Weinberg shows (Fig. 5; col. 4, line 15-17; column 17, line 21-39) a window of two panes showing the761Xnavigatiothrough a map on one pane and zooming in the other pane in an analogous art for the purpose of visualization of web sites and hierarchical data structures.
>
> A protocol tree is a general statement to describe multiple nested protocols as depicted in Fig. 19. The labeling on the left hand side clearly refers to OSI layers. This is a clear indication of Engel does have

OSI in mind, particularly data link layer, i.e. OSI Layer-2 and network layer, i.e. OSI Layer-3. Fig. 19 clearly map IP based and other protocol suite into OSI protocol layer architecture frame.

As a person of ordinary skill in the art is aware of the MIB is used to model IP based network management information, particularly the protocol entities of network.

As a person of ordinary skill in the art is aware of the meaning of navigation through a map, Weinberg's citation is particularly associated with a map on one pane and zooming in the other pane.

The combination of Engel and Weinberg recites all broad techniques covering all the limitations cited in claim 1.

Fig. 5 of Weinberg is reproduced as follows for convenience of reference.

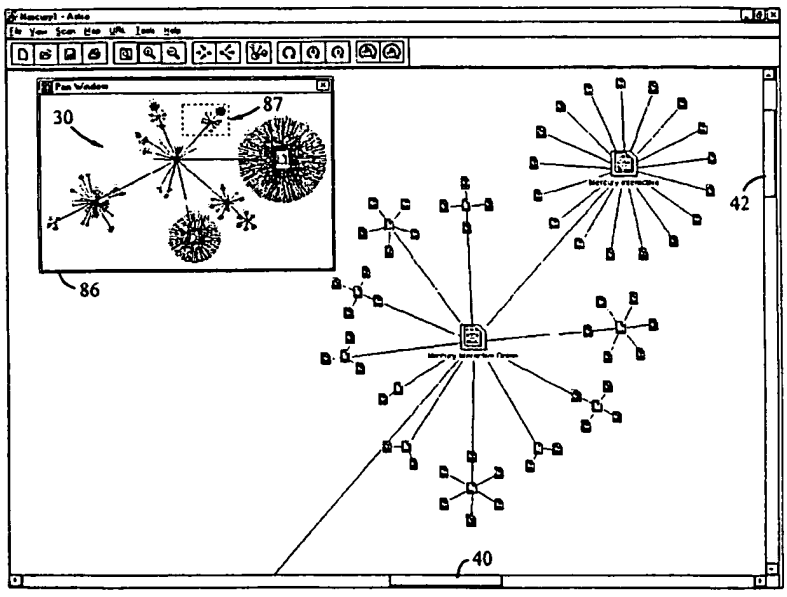


FIG. 5

U.S. Patent 6,144,962

Fig. 5 is described at column 17, of Weinberg, lines 21 *et seq* as follows:

> FIG. **5** illustrates a Pan Window feature of Astra This feature facilitates navigation of the site map while in a zoomed-in mode by presenting the user with a perspective view of the navigational position within the map. To display the Pan Window **86**, the user selects the "Pan Window" menu option from the VIEW menu while viewing a map. Within the Pan Window, the user is presented with a display of the entire map **30**, with a dashed box **87** indicating the portion of the map that corresponds to the zoomed-in screen display. As the user navigates the site map (using the scrolling controls **40, 42** and/or other navigational controls), the dashed box automatically moves along the map to track the zoomed-in screen display. The user can also scroll through the map by simply dragging the dashed box **87** with the mouse. In the preferred embodiment, the Pan Window feature is implemented in-part using a commercially-available from Stingray™ Corporation called SEC++, which is designed to facilitate the zoomed-in viewing of a general purpose graphic image.

Manifestly, the Examiner is reading into the Weinberg Fig. 5 something that is based on extrapolations from appellants' disclosure and claims and not from what flows naturally from the reference. Scrolling through a map by simply dragging the dashed box 87 through the picture and simply enlarging what is in dashed box 87 is not a teaching or suggestion of appellants' invention.

The mere fact that the prior art could be modified in the manner suggested by the examiner does not make such a modification obvious unless the prior art suggested the desirability of the modification. See *In re Gordon*, 773 F.2d 900, 902, 221 USPQ 1125,

1127 (Fed. Cir. 1984). In addition, the Examiner's motivation for modifying Engel does not come from the teachings of the applied prior art. The only suggestion for modifying Engel in the manner proposed by the examiner to arrive at the claimed invention stems from hindsight knowledge derived from the appellants' own disclosure. The use of such hindsight knowledge to support an obviousness rejection under 35 U.S.C. 103 is, of course, impermissible. See, for example, *W. L. Gore and Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Even if the Weinberg reference could be considered pertinent prior art, Fig. 5 pointed to by the Examiner as showing two panes, in actual fact shows two distinct windows, each window having a single pane. As noted earlier, element 86 of the Weinberg reference is a window labeled "Pan Window" floating in front of the window entitled "Mercury1 - Astra". Therefore, Weinberg does not teach a single window having two panes.

In the Engel rejection, the Examiner refers to col. 17, lines 21-39 for support for the description of a navigational aid for panning through a map. It is clearly understood that zooming shows the same information of the same layer in greater detail. Appellants respectfully submit that Weinberg does not teach simultaneously displaying OSI Layer-3 entities and different OSI Layer-2 entitles corresponding to a selected OSI Layer-3 entity in

different window panes of a single window. Paragraphs [70] to [74] of the present application refer to "drilling-down" through progressive exposure of connectivity information corresponding to different lower OSI Layers.

It is respectfully submitted that Weinberg teaches away from the invention. Weinberg simply teaches showing enlarged portions of a map of OSI Layer-7 information.

The Examiner omitted to account for the essential element of independent claims 1, 7 and 13 wherein relationships between a selected OSI Layer-3 entity and the corresponding OSI Layer-2 entitles are displayed simultaneously in corresponding panes of a single window.

It is well established that in order to establish a case of *prima facie* obviousness under 35 U.S.C. 103(a) that there must be objective evidence, either in the two references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teaching of the references.

Appellants respectfully submit that the Examiner did not provide necessary objective evidence of any teaching, motivation or suggestion for combining the references to enable an application of Section 103(a), as cited. Appellants submit that the Examiner is required to provide such evidence. *In re Lee*, 61 USPQ2d 1430 (CA FC 2002) states that "[w]hen patentability turns on the question of

obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to selected and combine the references relied on as evidence of obviousness"; *In re Lee, supra*, also states that the rationale for combining references "must be based on objective evidence of record" and cannot be "resolved on subjective belief and unknown authority".

The motivation mentioned by the Examiner to "zoom in the contents of a map [while] still keep[ing] the current context of the map as per Weinberg", if applied to network management as described by Engel, would only provide panning through OSI Layer-1 information.

In summary, neither Engel nor Weinberg teaches a graphical user interface for a network management system, the graphical user interface having a single window, the single window having two panes displayed simultaneously, OSI Layer-3 entitles being displayed in the first panel. OSI Layer-2 entities corresponding to an OSI Layer-3 entity selection being displayed simultaneously in the second panel, such that relationships between the selected OSI Layer-3 entity in the first pane and the corresponding OSI Layer-2 entitles in the second panel are displayed, are shown in Fig. 6, for example.

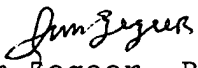
Therefore, appellants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness as the

Weinberg reference is non-analogous prior art, Engel and Weinberg do not teach all the elements of the invention as claimed, and no objective evidence of record was provided teaching the combination of the two cited references in order to arrive at the claimed invention. Independent claims 7 and 13 include similar limitations to those in claim 1. Claims 2 - 6, 8 - 12 and 14 - 18 are variously dependent from respective independent claims 1, 7 and 13 and include all the limitations thereof. For these reasons, appellants respectfully submit that the subject matter of claims 1 - 18 of the present invention is not obvious in view of the cited references.

CONCLUSION

In conclusion, the Examiner erred in rejecting 1 - 18 and should be reversed.

Respectfully submitted,



Jim Zegeer, Reg. No. 18,957
Attorney for Appellant

Attachment: EXHIBIT
CLAIMS APPENDIX
EVIDENCE APPENDIX

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Date: February 7, 2006

In the event this paper is deemed not timely filed, the applicant hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 26-0090 along with any other additional fees which may be required with respect to this paper.

(viii) CLAIMS APPENDIX

1. A graphical user interface for a network management system equipped with network management logic for managing a communication network via the graphical user interface, the graphical user interface comprising:

a window having at least two view panes displayable simultaneously in the single graphical user interface window, a first view pane for displaying representations of OSI Layer-3 entities provisioned in the communication network over OSI Layer-2 entities, and a second view pane for selectively and simultaneously displaying representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

2. A graphical user interface as claimed in claim 1, wherein the network management system further comprises means for querying a managed object database storing connectivity information regarding field installed data transport equipment.

3. A graphical user interface as claimed in claim 2, wherein the network management system further comprises means for extracting from the managed object database layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane for display in the second view pane.

4. A graphical user interface as claimed in claim 1, wherein the network management system further comprises means for inspecting a containment hierarchy of instantiated manageable entity objects modeling field installed data transport equipment specifying connectivity information.

5. A graphical user interface as claimed in claim 4, wherein the network management system further comprises means for extracting from the containment hierarchy of instantiated managed entity objects layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane.

6. A graphical user interface as claimed in claim 1, wherein the graphical user interface window further comprises the first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities, and the second view pane for selectively and simultaneously displaying representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

7. A graphical user interface for a network management software application having network management logic for managing a communications network via the graphical user, the graphical user interface comprising:

a window having at least two view panes displayable simultaneously in the single graphical user interface window, a first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-2 entities, and a second view pane for selectively and simultaneously displaying representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

8. A graphical user interface as claimed in claim 7, wherein the network management software application further comprises means for querying a managed object database storing connectivity information regarding field installed data transport equipment.

9. A graphical user interface as claimed in claim 8, wherein the network management software application further comprises means for extracting from the managed object database layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane for display in the second view pane.

10. A graphical user interface as claimed in claim 7, wherein the network management software application further comprises means for inspecting a containment hierarchy of instantiated manageable entity objects modeling field installed data transport equipment specifying connectivity information.

11. A graphical user interface as claimed in claim 10, wherein the network management software application further comprises means for extracting from the containment hierarchy of instantiated manageable entity objects layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane.

12. A graphical user interface as claimed in claim 7, wherein the graphical user interface window further comprises the first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities, and the second view pane for selectively and simultaneously displaying representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the fist pane.

13. A method of managing a communications network in a centralized network management context via a graphical user interface, the method comprising steps of:

a. displaying in a first pane of a single graphical user interface window representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-2 entities; and

b. simultaneously and selectively displaying in a second pane of the single graphical user interface window representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

14. A method as claimed in claim 13, further comprising querying a managed object database storing connectivity information regarding field installed data transport equipment.

15. A method as claimed in claim 14, wherein querying the managed object database, the method further comprises extracting layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane for display in the second view pane.

16. A method as claimed in claim 13, further comprising inspecting a containment hierarchy of instantiated manageable entity objects modeling field installed data transport equipment specifying connectivity information.

17. A method as claimed in claim 16, wherein inspecting the containment hierarchy of instantiated managed entity objects, the method further comprising extracting layer-by-layer connectivity information regarding Layer-3 entity representations selected in the first view pane.

18. A method as claimed in claim 13, further comprising steps of:

a. displaying in the first pane of the single graphical user interface window representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities; and

b. simultaneously selectively displaying in the second pane the single graphical user interface window representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

(ix). EVIDENCE APPENDIX

There is no exhibit for this appendix.

(x). RELATED PROCEEDINGS APPENDIX

There are no proceedings as mentioned in section (i) above, and accordingly no decisions rendered.

Claim 1 A graphical user interface for a network management system equipped with network management logic for managing a communication network via the graphical user interface, the graphical user interface comprising: a window having at least two view panes displayable simultaneously in the graphical user interface window, a first view pane for displaying representations of OSI Layer-3 entities provisioned in the communication network over OSI Layer-2 entities, and a second view pane for selectively and simultaneously displaying representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

Claim 2 A graphical user interface as claimed in claim 1, wherein the network management (label 140 Figs. 1 and 4) system is further adapted to query (para. [76] lines 1 to 8) a managed object database (label 132 in Fig. 4) storing connectivity information (label 300 in Figs. 3 and 5) regarding field installed data transport equipment.

Claim 3 A graphical user interface as claimed in claim 2, wherein querying (para. [76] lines 1 to 8) the managed object database (label 132 in Fig. 4), the network management system (label 140 Figs. 1 and 4) is further adapted to extract (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [18] line 3, para. [58]) in the first view pane for display (para. [58] lines 1 to 3, para. [76] last 4 lines) in the second view pane.

Claim 4 A graphical user interface as claimed in claim 1, wherein the network management system is further adapted to inspect (para. [76] first 4 lines) a containment hierarchy (Figs. 3 and 5, para. [33]) of instantiated manageable entity objects modeling (para. [33]) field installed data transport equipment specifying (para. [34] last 4 lines) connectivity information.

Claim 5 A graphical user interface as claimed in claim 4, wherein inspecting (para. [76] first 4 lines) the containment hierarchy of instantiated managed entity objects, the network management system is further adapted to extract (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [58]) in the first view pane.

Claim A graphical user interface as claimed in claim 1, wherein the graphical user interface window further comprises the first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities, and the second view pane for selectively and simultaneously displaying representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the fist pane.

Claim 7 A graphical user interface for a network management software application having network management logic for managing a communications network via the graphical user interface , the graphical user interface comprising:

a window having at least two view panes displayable simultaneously in the graphical user interface window, a first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-2 entities, and a second view pane for selectively and simultaneously displaying representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

Claim 8 A graphical user interface as claimed in claim 7, wherein the network management software application is further adapted to query (para. [76] first 4 lines) a managed object database (label 132 Fig. 4) storing connectivity information regarding field installed data transport equipment.

Claim 9 A graphical user interface as claimed in claim 8, wherein querying (para. [76] first 4 lines) the managed object database (label 132 Fig. 4), the network

management software application is further adapted to extract (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [58]) in the first view pane for display (para. [76] last 4 lines) in the second view pane.

Claim 10 A graphical user interface as claimed in claim 7, wherein the network management software application is further adapted to inspect (para. [76] first 4 lines) a containment hierarchy of instantiated manageable entity objects modeling (para. [33]) field installed data transport equipment specifying (para. [34] last 4 lines) connectivity information.

Claim 11 A graphical user interface as claimed in claim 10, wherein inspecting (para. [76] lines 1 to 8) the containment hierarchy (label 300 in Figs. 3 and 5) of instantiated manageable entity objects, the network management software application is further adapted to extract (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [18] line 3, para. [58]) in the first view pane.

Claim 12 A graphical user interface as claimed in claim 7, wherein graphical user interface further comprises the first view pane for displaying representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities, and the second view pane for selectively and simultaneously displaying representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the fist pane.

Claim 13 A method of managing a communications network via a graphical user interface, the method comprising steps of:

a. displaying in a first pane of a single graphical user interface window representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-2 entities; and

b. simultaneously selectively displaying in a second pane the single graphical user interface window representations of OSI Layer-2 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.

Claim 14 A method as claimed in claim 13, further comprising querying (para. [76] lines 1 and 7) a managed object database (label 132 in Fig. 4) storing connectivity information regarding field installed data transport equipment.

Claim 15 A method as claimed in claim 14, wherein querying (para. [76] lines 1 and 8) the managed object database (label 132 in Fig. 4), the method further comprises extracting (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [18] line 3, para. [58]) in the first view pane for display (para. [58] lines 1 to 3, para. [76] last 4 lines) in the second view pane.

Claim 16 A method as claimed in claim 13, further comprising inspecting (para. [76] first 4 lines) a containment hierarchy of instantiated manageable entity objects modeling (para. [33]) field installed data transport equipment specifying connectivity information.

Claim 17 A method as claimed in claim 16, wherein inspecting (para. [76] first 4 lines) the containment hierarchy of instantiated managed entity objects, the method further comprising extracting (para. [76] lines 7 and 8) layer-by-layer connectivity information regarding Layer-3 entity representations selected (para. [18] line 3, para. [58]) in the first view pane.

Claim 18 A method as claimed in claim 13, further comprising steps of:

a. displaying in the first pane of the single graphical user interface window representations of OSI Layer-3 entities provisioned in the communications network over OSI Layer-1 entities; and

b. simultaneously selectively displaying in the second pane the single graphical user interface window representations of OSI Layer-1 entities corresponding to at least one OSI Layer-3 entity selected in the first pane.